Dodd Ford Bridge
County Road 147 Spanning Blue Earth River
Amboy Vicinity
Blue Earth County
Minnesota

HAER No. MN-73

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Rocky Mountain Regional Office
Department of the Interior
P.O. Box 25287
Denver, Colorado 80225

HAER No. MN-73

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HISTORIC AMERICAN ENGINEERING RECORD

DODD FORD BRIDGE

Location:	County Road 147 spanning Blue Earth River, Amboy Vicinity, Blue Earth County, Minnesota
UTM:	15:404575:4858620
Quad:	Amboy, Minnesota (7.5 minute series), 1967
Date of Construction:	1901
Present Owner:	Blue Earth County
Present Use:	Vehicular highway bridge
Significance:	Crossing the Blue Earth River in southern Blue Earth County, Minnesota, the Dodd Ford Bridge is a steel, pin-connected, nine-panel, overhead, Pratt-truss highway bridge. Constructed in 1901, it is among the state's earliest, remaining examples of the overhead Pratt type. The bridge also is significant for its association with Lawrence Henry Johnson, a prominent Minnesota bridge builder of the late nineteenth and early twentieth centuries. The Dodd Ford Bridge is one of only two authenticated, surviving examples of Johnson's work.
Historian:	Jeffrey A. Hess, 1993

Located in Blue Earth County in south-central Minnesota, the Dodd Ford Bridge carries County Road 147 across the Blue Earth River, about one mile southwest of the City of Amboy. Although the two-lane highway follows a general east-west course, the bridge itself has a north-south alignment. North of the bridge, the highway is paved; south of the bridge, it is graveled.

Dodd Ford Bridge was constructed in 1901, long after the first settlers had occupied the surrounding countryside. Shelby Township, which contains the bridge site, was organized in 1858, the year Minnesota achieved statehood. The township's main inducement to settlement was its rich prairie loam, rendered still more attractive by the availability of wood lots along the Blue Earth River.[1] By 1860, Shelby Township was among the most populous in Blue Earth County. In addition to its 315 residents, it also sustained a small but thriving village known as Shelbyville, located about two miles southeast of the Dodd Ford Bridge site. In the early 1860s, Shelbyville "was the only town in the county possessing the necessary enterprise to make an offer to handle the county fair." The community's assets included a hotel, church, schoolhouse, mill, two stores, a blacksmith shop, a wagon shop, and a post office.[2]

By 1875, Shelby Township was a relatively mature agricultural area, well known for grains and livestock.[3] At that time, the township's population was close to 800, and it remained

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[1] On the role of woodlots, see the printed notes accompanying Mary T. Dooley and others, [Map of] Ethnic Background: 1880; Resident Rural Landowners, Blue Earth County (Mankato, MN: Bureau of Planning and Cartographic Services, Geography Department, Mankato State University, n.d.).

[2] On Shelby Township and Shelbyville, see Kelly Dethloff Reuter, Amboy, Minnesota: A Heritage Rooted in Rural America (Amboy, MN: Centennial Celebration, 1979), 60-66. Population statistics for Blue Earth County townships are found in Thomas Hughes, History of Blue Earth County (Chicago: Middle West Publishing Company, 1909; repr., Walsworth Publishing Company, Inc., 1976), 305.

[3] Merrill E. Jarchow, The Earth Brought Forth (St. Paul: Minnesota Historical Society, 1949), 194.

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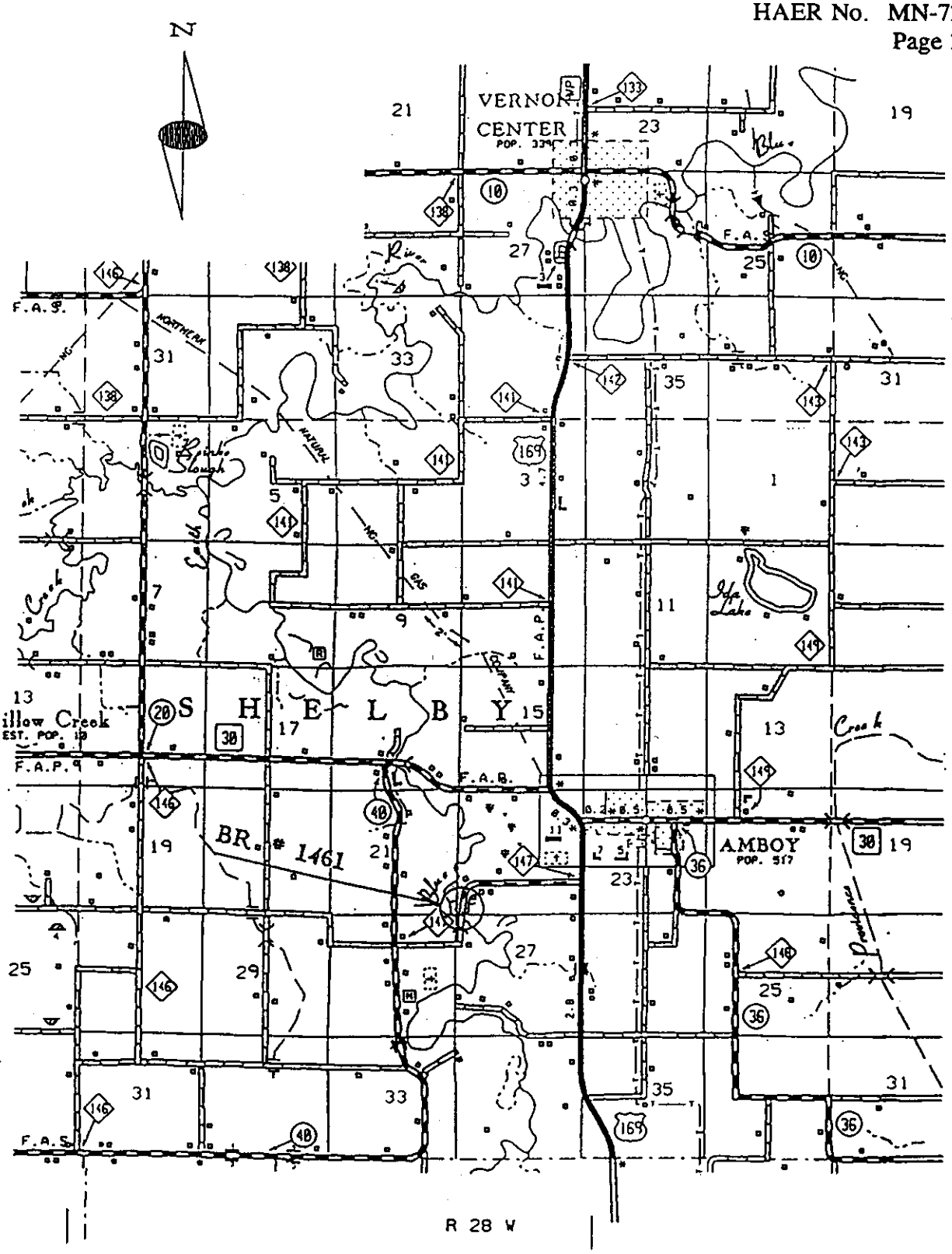

DODD FORD BRIDGE (BRIDGE NO. 1461)
BLUE EARTH COUNTY, MINNESOTA

at approximately the same level for the next thirty years. Despite such overall stability, there were some significant population shifts within the township itself.

The main catalyst for change was the St. Paul and Sioux City Railway (later a part of the Omaha Road), which in 1879 built a north-south branch line through Blue Earth County. In several townships along the proposed route, residents offered the railroad financial incentives to locate a depot in their vicinity.[4] For reasons that are not completely clear, the citizens of Shelbyville declined to do so. On 2 September 1879, they voted down a proposition to give the railroad a $10,000 grant. A week earlier, however, a group of farmers residing two miles north of Shelbyville had made the railroad an offer of their own:

> We, the undersigned subscribers and citizens . . . hereby mutually agree and pledge ourselves to each other that: We will pay the sums annexed to, or set opposite to, our names, for the purpose of buying forty acres of land . . . [which] we will give to the St. Paul and Sioux City Railroad Company and secure the same to them by warrantee deed, upon condition: That said company shall, within thirty days after receiving such deed, and after the track is laid . . . , proceed to lay out said land, or a part thereof into town lots, and erect a Depot building thereon, suitable for doing business at said station, and shall also build an elevator on said land . . . .[5]

The farmers' proposal was accepted, and a new townsite, named Amboy, was laid out in October 1879. The Amboy plat was a virtual death warrant for Shelbyville: "In two or three years it had become a deserted place. The buildings were all moved to other locations and all traces of the town disappeared."[6] Incorporating as a city in 1887, Amboy had more than 400 inhabitants by the turn of the century.

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[4] Richard S. Prosser, Rails to the North Star (Minneapolis; Dillon Press, 1966), 161.

[5] As quoted in Reuter, 71.

[6] Reuter, 74.

Amboy's emergence as a trade center necessitated improvements to the local road system. Although the city stood only about one-half mile west of the Blue Earth River, there was no highway bridge in its immediate vicinity. A road did enter Amboy from the west, but it crossed the river at a shallows known as Dodd Ford, which apparently was often an obstacle to vehicular traffic.[7] In the fall of 1900, the Blue Earth County Board of Commissioners investigated this problem and found that "owing to increased travel over this road and the danger of crossing the river during high water the public needs a bridge . . . to accommodate the constant travel." The board therefore agreed "to advertise for bids for the building of stone piers and a steel bridge over the Blue Earth River in Sec. 22 Town of Shelby at Dodd Ford according to plans and specifications on file at the Auditors Office." The preliminary design documents were prepared by the official county surveyor N.F. Brooks, who received a fee of four dollars for the work.[8]

The county board divided the Dodd Ford Bridge project into two contracts: one for the substructure, and the other for the superstructure. It opened bids for both contracts on 6 December 1900. The successful bidder for "building two stone piers" was the local contracting firm of Carlstrom Brothers. Their offer of $1,975 was $225 cheaper than that of the next lowest bidder, Joseph Landkamer. The substructure contract required the stonework to be in place by 1 May 1901. Carlstrom Brothers apparently complied, for county records note that the firm

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[7] The road into Amboy, and its crossing of the Blue Earth River at Dodd Ford, is delineated in The Standard Historical and Pictorial Atlas and Gazetteer of Blue Earth County, Minnesota (Minneapolis: The Central Publishing Company, 1895), 52. The Atlas (p. 55) identifies a Thomas Dodd as the owner of the south bank of the crossing, and presumably the ford was named for either him or his family.

[8] For the decision to build the bridge, see Blue Earth County Board of Commissioners' Minutes, 8 November 1900, in County Auditor's Office, Blue Earth County Courthouse, Mankato, MN. Brooks' fees are noted in Commissioners' Minutes, 8 February 1901.

received "bal[ance] due on Dodd Ford Bridge" in early June of 1901.[9]

The superstructure contract for supplying and erecting "a 150 foot steel span" elicited nine responses, about twice the number received for the substructure work. At that time, bridge building in Minnesota was dominated by six Minneapolis companies: Gillette Herzog Manufacturing Company (a subsidiary of the American Bridge Company); William S. Hewett and Company; Minneapolis Bridge and Iron Company; L. H. Johnson; M. A. Adams Bridge Company; and Hewett Bridge Company. Although the last two firms did not submit, the others did, and their proposals were within a few hundred dollars of each other, ranging from $2,948 by L.H. Johnson to $3,320 by the Minneapolis Bridge and Iron Company. The contract went to the lowest bidder, L. H. Johnson.[10]

As historian Frederic L. Quivik has noted, "virtually all of the major bridge building companies that grew up in Minneapolis were in one way or another descended from two individual bridge builders who were in partnership in 1882/83 [,] . . . Commodore P. Jones and Seth Maurice Hewett."[11] L. H. Johnson was no exception. This enterprise was named for Lawrence Henry Johnson, a German immigrant who, at the age of twenty-one, settled in Minneapolis and went to work for "Jones and Hewett," the only firm then listed in the city directory under "Bridge Builders." The nature of Johnson's duties are unrecorded, but he

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[9] Commissioners' Minutes, 6 December 1900, 6 June 1901.

[10] Commissioners' Minutes, 6 December 1900. For an excellent discussion of the Minneapolis bridge-building fraternity, see Frederic L. Quivik, "Montana's Minneapolis Bridge Builders," IA: The Journal of the Society for Industrial Archeology 10 (No. 1, 1984): 35-54.

[11] Quivik, 38.

apparently learned a good deal about the marketing end of the business. After five years with his Minneapolis employers, Johnson became a sales agent for Wisconsin Bridge and Iron Company of Milwaukee, which supplied highway bridges to county and township governments throughout Wisconsin and eastern Minnesota. Finally, in 1898, Johnson established under his own name in Minneapolis an independent bridge-building firm. In 1905, Johnson reorganized the business as the Hennepin Bridge Company and served as president of the new company until 1922.[12]

As contractor for the Dodd Ford Bridge, Johnson was responsible for transforming the county's general specifications for "a 150 foot steel span" into a fully detailed, standing structure.[13] To accomplish this task, he undoubtedly turned to an established bridge fabrication shop, possibly the Wisconsin Bridge and Iron Company, with which he had been associated earlier. In addition to engineering drawings and steel members, the fabrication shop also may have supplied a field erection crew, or Johnson may have hired and supervised the labor himself. Johnson's contract with Blue Earth County required project completion by 1 June 1901, and he apparently delivered the bridge on schedule, for he was paid in full on 6 June 1901.[14]

The Dodd Ford Bridge is one of only two surviving bridges known to have been built

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[12] In addition to Quivik, 74, see Robert M. Frame, III, "Historic Bridge Project: A Report to the State Historic Preservation Office of the Minnesota Historical Society and the Minnesota Department of Transportation," 31 March 1985, 81.

[13] Commissioners' Minutes, 6 December 1900.

[14] Commissioners' Minutes, 6 June 1901.

by Johnson while he operated as a contractor under his own name.[15] In its design and engineering, it is a conventional, pin-connected, nine-panel, 148.5-foot-long, steel truss of the overhead Pratt variety. During the late nineteenth and early twentieth centuries, this general type of truss was commonly used throughout the United States for highway crossings of approximately 90 to 150 feet in length.[16] Reflecting the prevailing bridge-engineering practices of its time, the Dodd Ford Bridge has relatively light construction, at least by later automobile-inspired standards. The bridge employs laced channel sections for vertical compression members; paired eyebars for horizontal tension members and lower chord members; angle sections for overhead sway bracing and portal bracing; and crossed eyebars for top-lateral and bottom-lateral bracing. The bridge further evokes its period by virtue of its narrow, 15-foot-wide roadway with a plank deck supported on wood stringers. Such design would be strongly discouraged, and eventually prohibited, by the Minnesota Highway Commission, established by legislative action in 1905, with the ultimate goal of standardizing bridge construction throughout the state. From an early date, the agency's bridge engineers advocated a 16-foot-minimum roadway, steel stringers, and, preferably, a reinforced-concrete deck.[17]

The Dodd Ford Bridge survived for most of its life with minimal alterations. The Blue

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[15] The other structure is the Delhi Bridge (designated Bridge No. 89850 by the Minnesota Department of Transportation), which was constructed over the Minnesota River between Redwood and Renville counties in 1903; see Frederic L. Quivik and Dale L. Martin, "Iron and Steel Bridges in Minnesota," National Register of Historic Places Multiple Property Documentation Form, prepared by Renewable Technologies, Inc., Butte, MT for State Historic Preservation Office, Minnesota Historical Society, 1988, Section E, 11.

[16] On the prevalence of the pin-connected Pratt truss, see T. Allan Comp and Donald Jackson, "Bridge Types: A Guide to Dating and Identifying," Technical Leaflet 95 (Nashville, TN: American Association for State and Local History, 1977). The authors also explain the structural terminology that immediately follows.

[17] Frame, 22-24; "State Highway Commission Plans [for Bridge Floors]" in Second Annual Report of the State Highway Commission of Minnesota, December 31, 1908 (Minneapolis: Pedersen Linotyping Co. Print, n.d.), n.p.; Minnesota State Highway Commission, Standard Specifications for Steel and Concrete Highway Bridges, Bulletin No. 9 (Minneapolis: The Thos. A. Clark Co., 1912), 6.

Earth County Highway Department repaired some cracking of the north abutment during the 1970s, and reinforced, by welding and bracing, a few collision-damaged members of the east web during the 1980s. In April 1993, however, the bridge suffered severe substructural damage when high water undermined a portion of the south abutment and swept away the southeast wing wall. The county immediately closed the structure and made plans for its replacement.[18] Because the Dodd Ford Bridge had been determined eligible for the National Register of Historic Places, the county agreed to document the structure, prior to its demolition, according to the standards of the Historic American Engineering Record.[19]

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[18] This assessment of the bridge's condition is based partly on a field inspection of the structure conducted by the author on 10 October 1993, and partly on a review of inspection, maintenance, and repair reports in the Bridge No. 1461 File in the Blue Earth County Highway Department Building, Mankato, MN. Although there are no original engineering drawings for the structure still in existence, the bridge's original appearance is documented by an early twentieth-century photograph published in Heritage of Blue Earth County (Dallas, TX: Curtis Media Corporation, 1990), 503.

[19] The bridge's National Register eligibility was based partly on its association with the historically significant, Minnesota bridge builder, L. H. Johnson, and partly on the scarceness of early twentieth-century, overhead Pratt trusses in Minnesota; see Jeffrey A. Hess, "Final Report of the Minnesota Historic Bridge Survey: Part 1," prepared for the Minnesota Historical Society and Minnesota Department of Transportation, 1988, 19. Since no federal funds were scheduled for use in replacing the Dodd Ford Bridge, the Blue Earth County Highway Department was not required by law to mitigate the bridge's replacement, and its documentation of the structure was therefore voluntary. The documentation project was completed on a contract basis by Hess, Roise and Company of Minneapolis.

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